HONEY BADGER PROJECT
Dry-site Species Habitat Analysis
Flammulated Owl, Fringed Myotis and Pygmy Nuthatch
Project File Document W-032
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Habitat Relationships

The flammulated owl, pygmy nuthatch and fringed myotis are considered together as they are species that are closely tied to dry site habitat, typically consisting of large, mature, xeric ponderosa pine and/or Douglas fir forest.

Flammulated owl nesting habitat is associated with dry, relatively open older forests dominated by ponderosa pine and Douglas fir with 35-65% canopy closure (MT Partners in Flight 2000, Howie and Ritcey 1987, Reynolds and Linkhart 1992). All recorded nests but one came from forests where ponderosa pine trees were at least present, if not dominant in the stand (Reynolds and Linkhart 1992). Flammulated owls are secondary cavity nesters needing nest trees or snags of at least fourteen-inch diameter (McCallum 1994). Although nesting habitat is thought to be more limiting on the landscape, the owl's preference for ponderosa pine/Douglas fir cover type can also be linked to food availability. Reynolds and Linkhart (1992) noted a stronger correlation between prey availability (almost entirely insects) and this cover type than with other common western conifer cover types.

Fringed myotis are members of the group of bats referred to as the "long-eared" bats. They use a fairly broad range of habitats represented by open areas (e.g. grasslands) interspersed with mature forests (usually ponderosa pine, pinion-juniper or oak) at middle elevations that contain suitable roost sites and are near water sources (Keinath 2004). Fringed myotis feed on insects during flight and glean insects off of vegetation, usually near the top of the forest canopy, with beetles and moths making up the majority of their diet (Keller 2000, O'Farrell and Studier 1980, Wisdom et al. 2000).

Where available, fringed myotis use caves, mines, buildings and rock crevices as day, night, maternity, or hibernation roost sites (Ellison et al. 2004). They also roost underneath the bark and inside cavities of snags, particularly larger ponderosa pine and Douglas-fir snags in medium stages of decay (O'Farrell and Studier 1980, Rabe et al. 1998, Weller and Zabel 2001, Rasheed et al. 1995). Generally, snags used as roost sites are in somewhat open microsites within otherwise contiguous forest (Weller and Zabel 2001). Because of the short lifespan of snags, bats using snags to roost require a high density of snags and often move between snags while roosting (Weller and Zabel 2001, Rabe et al. 1998).

Pygmy nuthatches are sedentary, year-round residents of ponderosa pine forests (Ghalambor 2003). They rely heavily on the foliage of live, larger ponderosa pines as foraging habitat and on larger ponderosa pine snags for nesting and roosting cavities (McEllin 1979). They prefer to forage in the dense foliage of pines and subsist on arthropods and pine seeds (Ghalambor 2003). Their almost exclusive association with mature to late seral ponderosa pine stands that are fairly open (less than 70% canopy closure) leads to a patchy distribution of the pygmy nuthatch; as they mirror ponderosa pine's distribution (Kingery and Ghalambor 2003, Engle and Harris 2001).

Affected Environment

Historically ponderosa pine was thought to comprise of up to 65% of dry forest lands on the Idaho Panhandle National Forests. Due to a number of factors over time, including fire suppression and forest management, ponderosa pine has declined to less than 10% (USDA Forest Service 2013). Without fire on

the landscape, shade-tolerant species such as Douglas-fir and grand fir have become dominant, crowding out ponderosa pine. Additionally, timber harvest, especially close to settled areas, was another driver in ponderosa pine decline. These past timber harvest activities, in combination with active fire suppression in unlogged stands, have contributed to the lack of habitat for these wildlife species currently throughout portions of their range.

Mature, open-grown, dry-site forests are considered the most critical and limiting habitat feature for flammulated owls. Pygmy nuthatches also prefer mature, open-grown, dry-site forests with ponderosa pine as an essential component. In addition to large snags in mature open-grown dry-site stands, fringed myotis also require old mines as roost sites (maternity and hibernacula). Stands in the drier habitat types (ponderosa pine, Douglas-fir, and dry grand fir) are considered capable habitat for these species. Approximately 8,973 acres (21%) of the Honey Badger Project area is dry site forest (capable habitat). These stands are scattered throughout the project area.

Calling surveys for flammulated owls were conducted in the Honey Badger Project area in 2018 (Wildlife Project File W-008, W-009). One flammulated owl was heard calling during the surveys, although a follow-up search within suitable habitat failed to detect any further presence of owls. The area where this owl was heard along Forest Road 206 is outside any area proposed for work activities.

Pygmy nuthatches have only been documented at a few locations in Kootenai and Bonner Counties, but no surveys have been conducted specific to this species in the project area.

While fringed myotis use mature dry forest, they also make extensive use of caves and mines for roost sites, particularly during hibernation. There is mining activity occurring within the project area. There are 19 adits in the project area with three in dry site habitat that are open or potentially open. Of these three, two are in an area where no work is will occur and one is located in a unit where prescribed burning is proposed. No survey information was found, nor is the presence of bat gates known for this adit. Although it is possible that this adit may provide roosting habitat for this species, there is no documented occurrence of fringed myotis within the project area. Additionally, there are no known maternity or hibernation roosts for any bat species on the district.

Environmental Consequences

Methodology

Mature, open-grown, dry-site forest was identified through timber stand exams, based on potential vegetation (habitat type) of the stand. Stands classified as “moderately warm” (or warmer) and “moderately dry” (or drier) potential vegetation were considered capable habitat using Forest Service vegetation databases (FSVeg and R1 VMap (2017)). Potentially suitable habitat includes those capable stands with a forest (cover) type of ponderosa pine or Douglas-fir, canopy closure between 35 and 65 percent and average diameter and breast height (DBH) greater than 15 inches in the primary canopy layer. For forest stands missing any of these parameters, VMap and/or aerial interpretation were utilized along with all relevant parameters available.

Stands were analyzed to determine if they contained the habitat parameters necessary to be considered potentially suitable for flammulated owl, pygmy nuthatch and fringed myotis. In addition, the presence of adits in or near dry sites was considered for fringed myotis. The potential effects on these species and their habitat were determined by predicting the change in trends toward habitat suitability that would result from each alternative.

Alternative 1 – Direct and Indirect Effects

While Alternative 1 would not alter existing vegetation patterns through mechanical means, tree mortality caused by agents such as root disease and insect damage would continue to influence habitat conditions. Without fire on the landscape, there would be a continued shift toward denser canopies of shade-tolerant species in capable stands. Douglas-fir trees would continue to be a dominant factor in disease-prone stands, discouraging the establishment and growth of ponderosa pine and reducing suitable habitat for these dry site wildlife species. Since disturbance levels and habitat would be unchanged under the no action alternative, there would be no direct or indirect effects on these species, although the changes discussed above would continue to influence species presence and distribution.

Alternative 2 - Direct and Indirect Effects

The proposed action includes timber harvest on approximately 1,302 acres of capable habitat for these species (dry forest), approximately 340 acres of which were determined to be potentially suitable. This includes approximately 178 acres of clearcut with reserves, 909 acres of shelterwood harvest, 179 acres of seedtree harvest and another 35 acres of thinning.

The following description of harvest methods was compiled through discussion with the project silviculturist:

- **Clearcuts** are typically assigned to stands that have very few larch, white pine and ponderosa pine available for retention. There will likely be less than 10% live canopy cover after harvesting and slash disposal (usually burning) with retention mainly for snag and coarse wood recruitment.

- **Shelterwood cuts** would generally have 10-20% live canopy cover following harvest and slash disposal (usually underburning) with retention of primarily large Douglas-fir and all healthy ponderosa pine, with occasional western larch and white pine.

- **Seed tree cuts** would usually have 5-15% live canopy cover after harvest and slash disposal (usually burning) with retention of healthy white pine, larch and/or ponderosa pine kept for the production of seed on site which will contribute to regeneration of the site following harvest.

- **Thinning** is conducted on the lower canopy cover, often retaining the largest, healthy trees and would generally have a post-harvest canopy cover of 40-60%.

All of these harvest prescriptions would reduce density of shade-tolerant tree species to favor long-lived early seral species, and in doing so would trend these stands toward large-diameter, low density conditions more representative of pre-settlement conditions that are preferred by these wildlife species.

Both the Idaho Partners in Flight (2000) and Montana Partners in Flight (2000) conservation plans recommend dry-site restoration treatments that include removal of small diameter trees and subsequent burning to enhance and/or restore habitat for these species. In addition, van Woudenberg (1999) recommends using “partial cutting and selection silvicultural systems” for long-term regeneration of dry-site landscapes. Most of the currently suitable dry site stands in the Honey Badger Project area would trend away from suitable conditions over the next 20 to 50 years if no action were taken, as shade-tolerant Douglas-fir continues to increase canopy cover and compete with large ponderosa pines for nutrients.

Approximately 962 acres of capable habitat not identified as potentially suitable could be converted to a potentially suitable condition, or trended in this direction, through mechanical treatment. Some of these stands contain large diameter trees in the primary canopy layer, but excessive density in the secondary layers results in dense overstory canopy and understory congestion. Shelterwood harvest prescriptions are designed to trend currently unsuitable dry site stands toward conditions similar to what would have been created through natural disturbances and, therefore, closer to suitable nesting or roosting habitat conditions. These prescriptions are designed to favor ponderosa pine in stands that currently contain a high density of shade-tolerant species in the understory layers. Approximately 136 of these acres would be treated by clearcut with reserves, 730 acres treated by shelterwood, 61 acres treated by seedtree harvest and 35 acres treated by commercial thin.

The action alternative proposes burning on another approximately 2,179 acres of dry site (capable) habitat including about 454 acres of potentially suitable nesting habitat. These burns are intended to mimic mixed-severity fires such as would have occurred naturally, and therefore are expected to benefit these species by maintaining currently suitable habitat and thinning dense forest by under-burning and occasional crown fire in immature stands. Similarly, burning in unsuitable stands would reduce understory congestion and create small openings in the canopy that would increase structural complexity and encourage seral species establishment. Fuels reduction, when done to trend towards the desired conditions for vegetation (FW-DC-VEG-01 through 08, FW-DC-VEG-11, and FW-DC-FIRE-03), will improve or maintain flammulated owl habitat, move habitat conditions towards historic conditions, make stands more resilient to disturbance, and maintain or improve snag habitat. By moving towards the desired conditions for vegetation, the amount and distribution of flammulated owl habitat will approximate what would have been present under natural disturbance processes. Drier forests, which are the most likely to be outside of historic conditions due to fire suppression, will be more resilient to large-scale disturbance (FEIS, p. 330).

Project activities could result in temporary disturbance to individuals of this habitat group. Disturbance would include the potential removal of some cavities available for nesting, and possible displacement associated with mechanical treatment and prescribed fire. These disturbances are of minor consequence given the mobility of these species, the silvicultural prescription to retain large trees and snags and the post-treatment benefit of maintaining dry-site forest conditions beneficial to this group.

Road treatments are not expected to substantially impact these species as the road segments to be constructed or improved will be stored and temporary roads will be front-end obliterated following project activities.

All of the other proposed activities are expected to have little or no effect on these species. None of these would affect dry-site forest, so would not result in appreciable habitat modifications or disturbance.

Cumulative Effects

Below is a description of other past, present, and reasonably foreseeable future actions within the Project Area that will affect dry habitat species that the Forest Service is aware of.

Ongoing activities in the project area that likely will continue include firewood gathering, recreational activities, fire suppression and remaining fuels project activities authorized under more recently completed NEPA decisions. Activities that occur in dry site habitat have the potential to disturb these wildlife species. As these activities are occurring and are expected to continue in the future, it is unlikely that these species would avoid these areas to a greater degree than what may be currently occurring. When these effects are combined with the temporary disturbance associated with the proposed honey

Badger Project, the cumulative impact on Flammulated owl, pygmy nuthatch and fringed myotis is expected to be insignificant.

Conclusion

The proposed treatments would trend currently not suitable, capable habitat towards a suitable habitat condition by reducing stand density while favoring retention of larger trees and snags. While some potentially suitable habitat would be made unsuitable by timber harvest, other treated acres are expected to maintain suitability for a much longer time period than if left untreated. The proposed action comprises timber harvest on approximately 8,973 acres of capable habitat for these species (dry forest), approximately 340 acres of which were determined to be potentially suitable. In capable habitat, this includes approximately 136 acres of clearcut with reserves, 730 acres of shelterwood harvest, 61 acres of seedtree harvest, and another 35 acres of commercial thin. Thinning will retain the greatest amount of canopy cover and is expected to maintain, or enhance, suitability by reducing understory congestion, increasing habitat heterogeneity (creation of small openings) and increasing tree diameter in the primary canopy layer by decreasing competition for water and nutrients. Shelterwood and seedtree harvest would generally retain large ponderosa pine and Douglas fir, although the treatment will make habitat unsuitable in the near future by removing structural complexity and decreasing overstory canopy cover below what these species prefer for nesting/roosting and foraging. Clearcut with reserves is usually prescribed in areas where there is a lack of healthy ponderosa pine preferred by these dry-site species. While there may be some risk to capable habitat (snag loss and reduction of roosting habitat) associated with timber harvest, several studies have documented flammulated owl use of selectively logged sites (Howie and Ritcey 1987, van Woudenberg 1999, Wright 1996, Wright et al. 1997). Additionally, there would seem to be little risk in treating stands that are currently unsuitable due to excessive overstory and understory density.

Samson (2006a) estimated that the critical habitat threshold for a minimum viable population of flammulated owls is 4,700 acres, while the IPNF alone is estimated to contain approximately 32,967 acres of habitat (Bush and Lundberg 2008). Under the 2015 revised Forest Plan, habitat for this species is expected to increase over the next 5 decades from increases in large snag densities and increases in actual and potential habitat over this time as a result of a warmer, drier climate and increase in low- and moderate-severity wildfires (USDA Forest Service 2013).

By inference, it is reasonable to assume that adequate habitat exists to support viable populations of species with similar habitat requirements (pygmy nuthatch and fringed myotis) as well. Based on this analysis, the action alternatives may ***impact individual*** flammulated owls, pygmy nuthatches and fringed myotis ***or their habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.***

Consistency with Forest Plan

There are no Revised Forest Plan standards or guidelines specific to these species. Dry forest species are indirectly addressed in the Revised Plan through objective FW-OBJ-WL-01, desired condition FW-DC-VEG-01, FW-DC-VEG-02, FW-DC-VEG-03 and FW-DC-VEG-11 (improve habitat by restoring species structure and composition to more closely reflect HRV); and desired condition FW-DC-VEG-07 and guideline FW-GDL-VEG-04 (snag presence). The action alternatives are consistent with this direction, while alternative 1 does little to restore habitat or encourage large-diameter snag development.

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